Winter 2003
Volume 3 Issue 1

The WAVE

What All Pool Staff Should Know about Recreational Water Illnesses

INSIDE THIS ISSUE:

'Tis the Season for Hot Tubs

During the winter months, millions of Americans melt Jack Frost away by soaking in hot tubs. Many of these people are unaware that they may get sick from the water if the hot tub is not properly maintained. Skin infections caused by bugs like *Pseudomonas* ("hot tub rash") are the most common infections spread through hot tubs and spas. The increased temperature of the water in hot tubs and spas can cause the disinfectant to evaporate more rapidly than in swimming pools. As a result, chlorine or other disinfectant levels in hot tubs and spas need to be checked and adjusted more regularly than in swimming pools. Swimmers depend on hot tub operators to ensure that hot tubs are well maintained. Don't let your patrons down. Check disinfectant levels and pH on an hourly basis. Skin infections should not be transmitted if the water quality is properly maintained and monitored.

CDC guidelines for the proper treatment and maintenance of water in spas and hot tubs:

1. During hours of operation, test the water and record the results hourly.
2. Maintain the optimal disinfectant ranges continually.
   a. Free chlorine 2-5 ppm
   b. Bromine 2-5 ppm
   c. pH 7.2-7.8
3. "Shock treat" the water at the end of the daily use period.
4. Scrub the hot tub to break up the scum layer before shock treating. This layer can protect germs from the killing power of your disinfectant.

U.S. Department of Health and Human Services. (1985). Suggested Health and Safety Guidelines for Public Spas and Hot Tubs. Washington D.C.: Government Printing Office.

A Rash of Hot Tub Rashes

The winter weeks following February 7, 1999 were itchy ones for some 34 people who contracted "hot tub rash" or *Pseudomonas* dermatitis through contact with contaminated water. The outbreak was initially noticed when the Colorado Department of Public Health and Environment (CDPHE) was notified of 15 people with a rash following use of a hotel pool and hot tub. An additional 25 community residents who used the hotel's pool and hot tub on a pay-to-swim basis were identified and of the 20 people who used the hot tub, 19 developed "hot tub rash." The rashes occurred among children and adults attending two birthday parties at the hotel and among community residents who used the pool on a pay-to-swim basis.

Skin infections are the most common infections spread through hot tubs and spas and usually occur as a result of low disinfectant levels that allow contaminating germs to multiply. The hot tub at the Colorado hotel relied on an automated chlorination and pH adjustment system. A printout of the hourly free chlorine and pH levels in the pool and hot tub revealed that chlorine levels dropped below 1 ppm on the evening of February 4th due to a faulty chlorine pellet dispenser.

(*continued on page 2)*

"Skin infections are the most common infections spread through hot tubs and spas and usually occur as a result of low disinfectant levels."

A RASH OF HOT TUB RASHES (CONTINUED FROM PAGE 1)

Because hotel staff did not perform routine onsite water testing for the pool or hot tub and did not check monitor readings, the disinfectant levels remained below 1 ppm for almost 3 days.

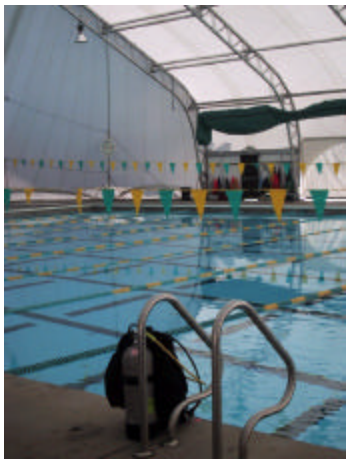
Several factors contributed to the outbreak of "hot tub rash" including: hotel employees with a minimal understanding of the equipment, no regular checking of the disinfection equipment, poor pool and spa maintenance, and a lack of awareness of the link between water disinfection and disease transmission by staff. To reduce the risk for outbreaks of "hot tub rash," pool and hot tub operators should:

- Follow regulatory requirements for pH and disinfectant levels in hot tubs.
- Make sure staff have a thorough knowledge of basic aquatic facility operation.
- Monitor hot tub disinfectant levels on an hourly basis.
- Perform regular checks of automated equipment to ensure that it is working properly.

While automated systems may save time, they are not foolproof. They should not take the place of periodic, manual testing of disinfectant and pH. Following these guidelines will help to prevent the spread of dermatitis and give hot tub patrons a "rash-free" winter.

For more information go to www.cdc.gov/mmwr/preview/mmwrhtml/mm4948a2.htm

IRRITANTS AND INDOOR POOLS



Are you getting complaints from swimmers or your staff about stinging eyes, nasal irritation, or difficulty breathing after being at your indoor pool? New research indicates that these symptoms may be an indication of poor indoor air quality at your pool caused by a build-up of irritants in the air.

Irritants in the air at swimming pools, particularly indoor pools, are usually the combined chlorine byproducts of disinfection chemicals. Breathing air loaded with irritants can cause a variety of symptoms depending on the concentration of irritants in the air and amount of time the air is breathed. The symptoms of irritant exposure can range from mild symptoms such as wheezing, to severe symptoms such as lung disease and asthma. It is also known that routine breathing of irritants may increase sensitivity to other types of irritants such as mold, fungi, and bacteria.

What causes the build-up of these irritants in the air? The answer is poor air turnover. The poor movement of fresh air over the pool surface, combined with the use of air recycling devices to control heating costs, leads to poor air exchange. Recyclers remove the moisture from the air, but they do not necessarily take in much fresh outside air. They save money on heating, but according to Emanuel, the health risks to your patrons and staff associated with the excessive use of these devices outweigh the financial benefits. The recycled air flowing over the pool becomes saturated with chlorine irritants so that it can no longer absorb or pick up new byproducts coming off the pool. Because recyclers do not remove all of the byproducts in the air, they allow the irritants to accumulate and reach unhealthy levels. In addition, if the air is already saturated with irritants, new irritants being produced will stay in the pool water causing further eye problems for your swimmers. Super chlorination does little good if there is no fresh air available to pick up the irritants coming off the pool surface.

You can fix the problem of poor indoor air quality by improving air movement over the pool and increasing the air turnover rate. One option is to open all of the doors and windows in the pool area or use fans to boost airflow over the pool surface when many swimmers are using the pool. When super chlorinating, do the same. Also, ensure that the air recycling systems are bringing in enough fresh air. Remember that adequate disinfectant levels can help reduce irritant levels by decreasing their formation. Getting swimmers to use the bathrooms regularly can also reduce the

(Continued on page 3)

SWIMMING WITH THE U.S. AIR FORCE: SPOTLIGHT ON MR. PHLLIP HEEG

In this issue, *The Wave* shines a spotlight on Mr. Phillip Heeg and the Air Force Outdoor Recreation Program. Managed by Mr. Heeg, the program includes a wide range of recreational activities, including the 186 wading and swimming pools on Air Force installations around the world. Mr. Heeg says the swimming pools "are among the most popular facilities with our customers and their families. While the civil engineering community does a good job managing the water quality in our pools, we needed to stay proactive in keeping our pools a safe and fun place for our customers."

Clearly the safety and health of the pool patrons are a top priority with Heeg. In April of 2002, he issued mandatory guidance to all Air Force installations addressing recreational water illnesses (RWIs) and participation in the CDC's Healthy Swimming project, beginning with the 2002 swimming season. This made the use of CDC's Healthy Swimming educational materials mandatory in all Air Force installations worldwide. The stimulus for issuing this mandatory guidance was both Heeg's professional desire to stay current on issues and practices in the aquatics field and an eye-opening presentation given by the CDC on RWIs at the National Recreation and Parks Association's 2002 National Aquatics Conference. "The value of the information and the benefits of the Healthy Swimming Program were very apparent," says Heeg.

Issuance of the mandatory guidance was just the beginning. If implementation of the Healthy Swimming Program was to be successful, Heeg would have to garner the support of the directors of outdoor recreation programs at the Air Force level and pool managers and pool staff at the installation level. He accomplished this through comprehensive education efforts. Information on RWIs was incorporated in the training of outdoor recreation directors at their annual meeting in October 2002. A representative from the Healthy Swimming Project spoke at the meeting. "The presentation given by Kristin Dixon really helped them understand why the Air Force is behind the Healthy Swimming Project." In addition, RWIs are among the topics that are covered when he teaches managers courses and conducts conference breakouts.

The Healthy Swimming mandatory guidance directed the installations to take seven steps, which outlined the methods, personnel, and materials that should be used. The steps included guidelines for educating staff on RWIs, marketing of the program, and dissemination of education materials.

Mr. Heeg finds just about all of the education materials on the website to be useful and relevant. "We use the brochures and posters as part of our customer education efforts and the information for pool operators for our staff." He chose which materials to use by spending some time on *healthyswimming.org* and identifying where to find the items available for download so the URLs could be included in his guidance to the field. This way the installations would know exactly where to get the materials that they were required to use.

"This is a great example of

(Continued on page 4)

Picture courtesy of the U.S. Air Force

Phillip Heeg, Certified Park and Recreation Professional

"We had a very successful swim season in 2002, so any concern that we might scare away customers was unwarranted."

IRRITANTS AND INDOOR POOLS (CONTINUED FROM PAGE 2)

amount of urine in the pool that will lead to irritant formation.

For the health of your staff and patrons, remember that all indoor pools need adequate fresh air exchange and all pools need good water quality. This will help make your pool area a healthier and more enjoyable place to play and work and reduce the complaints you receive.

For more information on the topic:

Emanuel BP. The Relationship Between Pool Water Quality and Ventilation. Environmental Health, 1998;2: 17-20.

Ratner J, Griffiths T. Exercise-Induced Asthma and Indoor Swimming Pools. Parks and Recreation. 1995; 7: 46-51.

SPOTLIGHT (CONTINUED FROM PAGE 3)

how the Internet can really help get materials into the hands of the front-line pool operators."

Heeg has had positive feedback from his pool staff and their patrons.

"While no one likes having new requirements laid on them, our training and the CDC's materials help the staff understand the need for this initiative. The materials are high quality and easy to use, which is a plus."

As for fears that creating awareness of RWIs would turn patrons away, "We had a very successful swim season in 2002, so any concern that we might scare away customers by sharing information on RWIs was unwarranted."

CHECK OUT OUR NEW FACT SHEETS

Healthy Swimming has developed 3 new fact sheets to address inquiries from pool staff and health professionals. Go to *healthyswimming.org* and click on 'disinfection guidelines' to find information on the following:

CDC Fact Sheet For pool staff

- Blood and Vomit Contamination in Pools
- Cleaning up Body Fluid Spills on Pool Surfaces
- Fecal Accident Response Recommendations for Pool Staff

Word Search

Y	E	M	O	Y	U	A	B	I	F	L	A	S	B	O	T	W
W	V	E	N	T	I	L	A	T	I	O	N	B	C	O	A	E
Y	A	F	R	F	C	R	Y	P	T	O	K	N	H	L	E	E
A	S	D	A	O	E	A	Q	U	P	P	V	Z	L	K	R	U
G	D	I	A	R	R	H	E	A	D	H	E	C	O	R	O	N
E	L	S	Y	M	F	A	M	U	I	R	N	R	R	G	A	T
A	J	I	O	E	R	A	T	T	A	E	T	U	I	H	L	P
M	M	N	U	D	L	E	R	S	O	S	Y	U	N	V	L	O
N	B	F	S	S	O	S	C	U	M	L	A	Y	E	R	E	O
O	N	E	A	T	A	Q	C	X	B	Z	D	O	R	Y	R	W
M	W	C	C	O	N	T	A	M	I	N	A	T	E	M	G	D
E	E	T	R	O	D	I	A	M	O	P	N	D	H	Z	E	R
G	Y	K	R	L	I	S	T	I	N	E	P	A	A	X	N	Y
J	H	O	T	T	U	B	R	A	S	H	L	M	L	D	S	M
T	O	A	D	T	A	P	M	A	T	C	T	E	L	U	P	E
E	P	O	O	P	I	N	T	H	E	P	O	O	L	I	L	U

Find the following words related to recreational water illnesses:

Aeroallergens	Crypto	Formed Stool	Poop in the Pool
Chlorine	Diarrhea	Hot Tub Rash	Scum Layer
Contaminate	Disinfect	pH	Ventilation